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ORNL

FOREIGN TRIP REPORT

TA 375667 and TA 376436

DATE: January 15, 2016

SUBJECT: Report of Foreign Travel Paris, France – Luiz C. Leal and Michael E. Dunn, Reactor

and Nuclear Systems Division

TO: Jerry N. McKamy, Nuclear Criticality Safety Program Manager, National Nuclear

Security Administration / NA-511/GTN, 1000 Independence Ave., SW, Washington,

DC 20585-1290

FROM: Luiz C. Leal and Michael E. Dunn

MEETING: Working Party on International Nuclear Data Evaluation Cooperation (WPEC)

TITLE Collaborative International Evaluated Library Organization (CIELO) Project Meeting

MEETING: Organization for Economic Co-operation and Development (OECD) Nuclear Energy

LOCATION Agency (NEA) Data Bank, Paris, France and IRSN, Paris, France

MEETING: OECD/NEA: May 18 to May 22, 2015; IRSN May 20, 2015

DATES

ATTENDEES: Luiz Leal and Michael Dunn

ON BEHALF OF NCSP

MEETING: BENEFIT TO NCSP Luiz Leal and Michael Dunn participated in the OECD/NEA WPEC meetings May 18-22, 2015. The objective of the WPEC meeting is to coordinate the international nuclear data measurement and evaluation work activities among the international nuclear data projects, and participation in the WPEC meeting is important for the NCSP as the meeting provides an opportunity to exchange information about nuclear data work efforts and help influence work activities that can benefit NCSP nuclear data work efforts. In addition, Leal attended the WPEC/CIELO subgroup meeting to report on nuclear data evaluation work performed at ORNL under the NCSP sponsorship. The data evaluations performed under the CIELO project coordination are of interest to criticality safety applications of interest to the NCSP. By participating in the meeting, Leal was able to receive technical feedback on the performance of the new evaluations (⁵⁶Fe, ¹⁶O, and ²³⁵U) from the international nuclear data community, and this information will be used to improve the nuclear data

evaluations to support NCSP application needs. Dunn is Chair of the international Evaluated Nuclear Data File (ENDF/B) Formats Committee. In this capacity, Dunn participated in the OECD/NEA WPEC Subgroup 38 meeting in order to develop a new international ENDF/B format. The new, modern ENDF/B format is used to transmit evaluated nuclear data files to the end user. As a result, the NCSP-developed cross-section processing tools are used to process the ENDF/B nuclear data files to produce cross-section libraries for the NCSP-developed radiation transport tools. Dunn's participation in the WPEC meeting is needed to ensure the NCSP needs are represented in the development of the new ENDF/B format. On May 20, Dunn and Leal visited IRSN to discuss the continued technical collaborations between the NCSP and IRSN. During the meeting, Dunn and Leal focused on the planned nuclear data evaluation collaborations for FY16. The NCSP/IRSN nuclear data collaboration will enable the NCSP to complete new nuclear data evaluations that are needed to address nuclear criticality safety applications.

PURPOSE:

Participate in the OECD/NEA WPEC meetings to exchange information about nuclear data work efforts and influence work activities that can benefit the NCSP. In addition, the travelers met with IRSN staff to discuss and plan continued NCSP/IRSN nuclear data work tasks.

SITES: VISITED OECD/NEA Headquarters (May 18-22, 2015) and IRSN (May 20, 2015)

ABSTRACT:

Michael Dunn and Luiz Leal participated in the OECD/NEA WPEC meetings May 18-22, 2015. During the week, Dunn and Leal participated in WPEC working group or subgroup meetings. Leal is a member of WPEC Subgroup 40, also known as the CIELO project, and during the CIELO meeting, the participants gathered to discuss progress on new evaluations for ¹H, ¹⁶O, ⁵⁶Fe, ²³⁵U, ²³⁸U, and ²³⁹Pu. Leal presented the new NCSP/ORNL resonance evaluation work that has been completed for ¹⁶O, ⁵⁶Fe, and ²³⁵U. In addition, the CIELO working group discussed the current status of the ²³⁹Pu evaluation work, and Leal is the technical lead for the ²³⁹Pu resonance evaluation. As a result, Leal was able to exchange information with the international nuclear data community that will improve the resonance evaluations for these key NCSP isotopes. In addition, Dunn participated in the Subgroup 38 Meeting, and Subgroup 38 is working to develop a new, modern ENDF/B format to replace the existing international data format. As Chair of the ENDF/B Formats Committee, Dunn participated in the SG38 Meeting to discuss the progress and direction of the new format development. In addition, Leal participated in the WPEC Meeting on May 21-22, 2015 to represent the ORNL/NCSP nuclear data measurement and evaluation work to the international nuclear data community. On May 20, 2015, Leal and Dunn met with IRSN staff at IRSN Headquarters to discuss continued NCSP/IRSN collaborative nuclear data work tasks.

Access to the information in this report is limited to those indicated on the distribution list and to U.S. Government Agencies and their Contractors.

REPORT OF FOREIGN TRAVEL

Luiz C. Leal and Michael Dunn Paris, France May 16-22, 2015

PURPOSE OF TRAVEL

The purpose of the travel is for Luiz Leal and Michael Dunn to participate in the OECD/NEA WPEC meetings to exchange information about nuclear data work efforts and influence work activities that can benefit the NCSP. In addition, the travelers met with IRSN staff to discuss and plan continued NCSP/IRSN nuclear data work tasks.

The OECD/NEA WPEC was formed to establish co-operation between the major nuclear data measurement and evaluation programs throughout the world. In particular, the US effort falls under the Evaluated Nuclear Data Files (ENDF/B) work headquartered at Brookhaven National Laboratory: the European data work is performed under the Joint Evaluated Fission and Fusion (JEFF) project: the Japanese works falls under the Japanese Evaluated Nuclear Data Libraries (JENDL); the Chinese work is performed to support the Chinese Evaluated Nuclear Data Libraries (CENDL); and the Russian work is performed to support the Russian Evaluated Nuclear Data Libraries (BROND). The purpose of the annual WPEC meeting is to assess the performance of all subgroups and to review, accept/reject new subgroup proposals. As a result, the WPEC coordinates the ongoing collaborative nuclear data work tasks in the international community. Representatives from all of these efforts convene annually to give updates on the status of their respective programs and to give reports on subcommittee activities that involve international data experts from all of these programs.

Michael Dunn and Luiz Leal participated in the OECD/NEA WPEC meetings May 18-22, 2015. During the week, Dunn and Leal participated in WPEC working group or subgroup meetings. Leal is a member of WPEC Subgroup 40, also known as the CIELO project, and during the CIELO meeting, the participants gathered to discuss progress on new evaluations for ¹H, ¹⁶O, ⁵⁶Fe, ²³⁵U, ²³⁸U, and ²³⁹Pu. The agenda for the WPEC Subgroup 40 Meeting is provided in Appendix A. Leal presented the new NCSP/ORNL resonance evaluation work that has been completed for ¹⁶O, ⁵⁶Fe, and ²³⁵U. In addition, the CIELO working group discussed the current status of the ²³⁹Pu evaluation work, and Leal is the technical lead for the ²³⁹Pu resonance evaluation. As a result, Leal was able to exchange information with the international nuclear data community that will improve the resonance evaluations for these key NCSP isotopes.

In addition, Dunn participated in the Subgroup 38 Meeting, and Subgroup 38 is working to develop a new, modern ENDF/B format to replace the existing international nuclear data format. The agenda for the WPEC Subgroup 38 Meeting is provided in Appendix B. As Chair of the ENDF/B Formats Committee, Dunn participated in the SG38 Meeting to discuss the progress and direction of the new format development. In addition, Leal participated in the WPEC Meeting May 21-22, 2015 to represent the ORNL/NCSP nuclear data measurement and evaluation work effort to the international nuclear data community. The agenda for the WPEC Meeting is also provided in Appendix C.

On May 20, 2015, Leal and Dunn met with IRSN staff at IRSN Headquarters to discuss continued NCSP/IRSN collaborative nuclear data work tasks. The meeting with IRSN provided an opportunity to discuss and plan the details of the collaborative NCSP/IRSN nuclear data work tasks for FY16.

With regard to the benefit of the foreign travel to the NCSP, the objective of the WPEC meeting is to coordinate the international nuclear data measurement and evaluation work activities among the international nuclear data projects, and participation in the WPEC meeting is important for the NCSP as the meeting provides an opportunity to exchange information about nuclear data work efforts and help influence work activities that can benefit the NCSP. In terms of specific benefit to the NCSP, Leal attended the WPEC/CIELO subgroup meeting to report on nuclear data evaluation work performed at ORNL under NCSP sponsorship. The data evaluations performed under the CIELO project coordination are of interest to criticality safety applications of interest to the NCSP. By participating in the meeting, Leal was able to receive technical feedback on the performance of the new evaluations (⁵⁶Fe, ¹⁶O, ²³⁵U, and ²³⁹Pu) from the international nuclear data community, and this information will be used to improve the nuclear data evaluations to support NCSP application needs. Dunn is Chair of the international Evaluated Nuclear Data File (ENDF/B) Formats Committee. In this capacity, Dunn participated in the OECD/NEA WPEC Subgroup 38 meeting in order to develop a new international ENDF/B format. The new, modern ENDF/B format is used to transmit evaluated nuclear data files to the end user. As a result, the NCSP-developed cross-section processing tools are used to process the ENDF/B nuclear data files to produce cross-section libraries for the NCSP-developed radiation transport tools. Dunn's participation in the WPEC meeting is needed to ensure the NCSP needs are represented in the development of the new ENDF/B format. On May 20, Dunn and Leal visited IRSN to discuss the continued technical collaborations between the NCSP and IRSN. During the meeting, Dunn and Leal focused on the planned nuclear data evaluation collaborations for FY16. The NCSP/IRSN nuclear data collaboration will enable the NCSP to complete new nuclear data evaluations that are needed to address nuclear criticality safety applications.

Leal Itinerary

5/16/15 - 5/17/15	Travel from Knoxville, TN, USA to Paris, France
5/18/15 - 5/22/15	WPEC Meetings at OECD/NEA and Meeting at IRSN on 5/20
5/23/15	Travel from Paris, France to Knoxville, TN, USA
Dunn Itinerary	
5/16/15 - 5/17/15	Travel from Knoxville, TN, USA to Paris, France
5/18/15 - 5/20/15	WPEC Meetings at OECD/NEA and Meeting at IRSN on 5/20
5/21/15	Travel from Paris, France to Knoxville, TN, USA

APPENDIX A

Organisation for Economic Co-operation and Development Nuclear Energy Agency

WPEC SG40

"Collaborative International Evaluated Library Organisation (CIELO) Pilot Project"

Agenda

NEA NEA Headquarters, Issy-les-Moulineaux May 18-20, 2015

	Monday, May 18, 2015 NEA Room B		
14:00 - 14:05	Welcome, Cabellos, Chadwick		
14:05 - 14:25	Summary of draft files collected at BNL and IAEA and plan for future – D. Brown, A. Trkov		
14:25 - 14:45	"Status of 56Fe evaluation in the fast neutron range", M. Herman		
14:45 - 15:05	Fe progress in resonance range, L. Leal		
15:05 - 15:25	"The evaluation of experimental data in fast range for 56Fe" - Jing Qian		
15:25 - 15:45	Iron measurements summary, Y. Danon		
15:45 - 16:05	Iron data testing, A. Trkov		
16:05 -16:20	Coffe break		
16:20 -16:45	Oxygen summary of progress, Plompen (including slides from others unable to attend, eg Lubitz, Hale, Kunieda)		
16:45 -17:00	O-16 evaluation ORNL/IRSN, L. Leal		
17:00 -17:15	Oxygen total cross section measurement for cielo, Y. Danon		
17:15 -17:30	Planned oxygen (n,a) LANL measurement (input from Lee) Chadwick		
17:30 -17:45	Oxygen data testing (Kahler, others?)		
	"Validation of Leal and hale O-16 Evaluations against FNS/JAEA Liquid Oxygen ToF Benchmark", I. Kodeli		
17:45 -18:15	Hydrogen - summary from Hale, Chadwick		
18:15 -18:30	Hydrogen S(alpha-beta) testing, S. Kahler		
18:30 - 18:45	NDEC nuclear data verification cycle summary, C. J. Diez		

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APPENDIX A

	Tuesday, May 19, 2015 NEA Room B	
	235U	
09:00 - 09:20	Resonance region, L. Leal	
09:20 - 09:40	Fast region work at the CEA, P. Romain	
09:40 - 10:00	Progress in U-235 evaluations, A. TRKOV	
10:00 - 10:20	Preliminary PFNS from Chi-nu at LANL, M. Chadwick	
10:20 - 10:40	Critical Benchmark Data Testing with CIELO Candidate Evaluations - U235, Albert. C. (skip) KAHLER	
10:40 - 11:00	Coffee break	
	238U	
11:00 - 11:20	Evaluation of 238U+n in the resonance region, P. SCHILLEBEECKX	
11:20 - 11:40	Progress in U-238 evaluations, A. TRKOV	
11:40 - 12:00	238 exp data summary, Y. Danon	
12:00 - 12:20	Critical Benchmark Data Testing with CIELO Candidate Evaluations - U238, Albert. C. (skip) KAHLER	
12:20-14:00	Lunch	
14:00 - 14:20	Validation Study on G-versions of U-238 Evaluations for JEFF, Do Heon KIM	
14:20 - 14:40	Reactivity effect of new light and heavy water TSL on critical systems, J. Ignacio MARQUEZ DAMIAN	
	Pu239	
14:40 - 15:00	Draft files created, Chadwick (input from kawano, Noguere, Kahler)	
15:00 - 15:20	PFNS, PFGS, TKE summary (input from Neudecker, Talou, Tovesson) Chadwick	
15:20 - 15:40	Coffee break	
15:40 - 16:00	Critical Benchmark Data Testing with CIELO Candidate Evaluations - Pu239, Albert. C. (skip) KAHLER	
16:00 - 16:20	Perspectives on actinide delayed neutrons in evaluations, A. Ignatyuk	
16:20 - 17:00	Discussion, All	

APPENDIX A

	Wednesday, May 20, 2015		
	NEA Room B		
09:00 - 12:30	Continues discussions on CIELO work, all		
	Path forward for CIELO		
	Wednesday, May 20, 2015		
	NEA Room A+B		
14:00 - 18:00	Joint Session SG38 + SG39 (Nuclear Data Adjustment) + SG40 (CIELO)		
14:00 - 14:20	SG38: "Overview of proposed new format, its similarities and differences compared to ENDF-6", Dave Brown		
14:20 - 14:40	SG38: "Detailed view of how covariances and uncertainties are handled in the proposed new format", Caleb Mattoon		
14:40 - 15:00	SG39: "Future plans for SG39", G. Palmiotti, M. Salvatores		
15:00 - 15:20	SG39: "Summary of first 2 SG39 deliverables", K. Yokoyama		
15:20 - 15:40	Coffee Break		
15:40 - 16:00	SG40: "Perspectives on progress and future of CIELO", M. Chadwick		
16:00 - 16:20	SG40:" Progress in CIELO on resonance range evaluations: Fe56, U235,238 and Pu239", L. Leal		
16:20 - 16:40	"Development of a new Nuclear Data Evaluation Cycle at NEA Data Bank", C.J. Díez		
16:40 - 17:00	"Using Sensitivity Data in DICE to identify CIELO benchmarks, and the Nuclear Data and Sensitivity Testing Tool", I. Hill		
17:00 - 18:00	Feedback and discussion		
18:00	Adjourn		

APPENDIX B

Organisation for Economic Co-operation and Development **Nuclear Energy Agency**

WPEC SG38

"Beyond the ENDF format: A modern nuclear database structure"

Agenda

NEA NEA Headquarters, Issy-les-Moulineaux May 20-22, 2015

	Wednesday, May 20, 2015 NEA Room A+B		
14:00 - 18:00	Joint Session SG38 + SG39 (Nuclear Data Adjustment) + SG40 (CIELO)		
14:00 - 14:20	SG38: "Overview of proposed new format, its similarities and differences compared to ENDF-6", Dave Brown		
14:20 - 14:40	SG38: "Detailed view of how covariances and uncertainties are handled in the proposed new format", Caleb Mattoon		
14:40 - 15:00	SG39: "Future plans for SG39", G. Palmiotti, M. Salvatores		
15:00 - 15:20	SG39: "Summary of first 2 SG39 deliverables", K. Yokoyama		
15:20 - 15:40	Coffee Break		
15:40 - 16:00	SG40: "Perspectives on progress and future of CIELO", M. Chadwick		
16:00 - 16:20	SG40:" Progress in CIELO on resonance range evaluations: Fe56, U235,238 and Pu239", L. Leal		
16:20 - 16:40	"Development of a new Nuclear Data Evaluation Cycle at NEA Data Bank", C.J.Diez		
16:40 - 17:00	"Using Sensitivity Data in DICE to identify CIELO benchmarks, and the Nuclear Data and Sensitivity Testing Tool", I. Hill		
17:00 - 18:00	Feedback and discussion		
18:00	Adjourn		

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APPENDIX B

	Thursday, May 21, 2015		
	NEA Room A		
09:00 - 18:00	Review progress since the last meeting Recent updates to low-level data containers in GND based on SG38 feedback, review draft requirements documents for low-level data containers (60 minutes) - Bret Beck Break (15 min) Recent updates to the particle database, review draft requirements document (45 minutes) - Caleb Mattoon Break (15 min) Recent updates to the top-level hierarchy, review draft requirements document (60 minutes) - Dave Brown		
	Lunch (12:30 - 14:00)		
	Feedback and counter-proposals from member institutions (15 minutes allotted for each presentation + 5-10 minutes for discussion). As many of the following as possible (may have some conflicts with the main WPEC meeting):		
	 IAEA (V. Zerkin) JENDL (T. Fukahori) ENDF (M. White or M. Dunn) JEFF (R. Jacqmin) CENDL (Zhigang GE) IRSN (W. Haeck) CEA (F. Malvagi) KAERI (Do Heon KIM) Thermal scattering libraries (D. Roubtsov or A. Hawari) Resonance treatment (L. Leal) others? 		
	Discussion: should SG-38 request a one-year extension from WPEC, in order to focus more on QA and testing? (20 minutes, D. McNabb)		
	Friday, May 22, 2015		
	NEA Room A		
09:00 - 18:00	Morning schedule will be left open for continued discussion of the requirements documents and feedback/counter-proposals, update		
	Lunch (12:30 - 14:00)		
	Progress update on QA/testing for GND, what steps have been taken up to now to check that the new structure and infrastructure are working properly. 2 hours, led by M. Dunn		

APPENDIX B

WPEC SG38 Participants List (as of May $12^{\rm th}$, 2015)

- # SG38: "Beyond the ENDF format: A modern nuclear database structure"
- 1 Dr Zhigang GE
- 2 Mr Dmitry S. OLEYNIK
- 3 Dr Oscar CABELLOS
- 4 Robert W. MILLS
- 5 Dr Do Heon KIM
- 6 Dr Luiz Carlos LEAL
- 7 David BROWN
- 8 Dr Morgan C. WHITE
- 9 Dr Cedric JOUANNE
- 10 Mr Michael DUNN
- 11 Mr Albert. C. (skip) KAHLER
- 12 Mr Dennis P. MCNABB
- 13 Dr Ayman I. HAWARI
- 14 Dr Danila ROUBTSOV
- 15 Caleb MATTOON
- 16 Mr Young-Sik CHO
- 17 Fausto MALVAGI
- 18 Bret BECK
- 19 Dr Wim HAECK
- 20 Mr Viktor ZERKIN
- 21 Mrs Mireille COSTE-DELCLAUX
- 22 Mr Mark CORNOCK

APPENDIX C

NEA/SEN/NSC/WPEC(2015)1

OECD/NEA Nuclear Science Committee Working Party on International Nuclear Data Evaluation Co-operation

Twenty-seventh Meeting of the NEA Working Party on International Nuclear Data Evaluation Co-operation

21 (starting at 9:00 a.m.) – 22 May 2015 NEA Headquarters, 7th floor, room B 12 boulevard des Iles 92130 Issy-les-Moulineaux, France

Please be advised that security arrangements at the OECD Nuclear Energy Agency require that you report upon arrival to the Reception Desk on the ground floor with a photo ID. A badge will be issued that will allow you to enter the premises at all times during the meeting. Local information about hotels and transport, as well as an area map, can be found on the Web page www.oecd-nea.org/general/practical.

Proposed Agenda (DRAFT)

Start at 9:00 am

- 1. Adoption of Agenda
- 2. Approval of the Summary Record of the Twenty-sixth Working Party meeting
 [NEA/SEN/NSC/WPEC(2014)2]
- 3. Membership and observers
 - Presentation
- 4. Reports on experimental activities
 - NEA DB (Europe, South Korea)
 - Japan
 - USA, "Report on U.S. Experimental Activities" by Y. Danon
 - Russia
 - China, "Nuclear data measurement activities in China" by X. Ruan
- 5. Brief progress reports from evaluation projects and discussion of future plans
 - ENDF, "Report on ENDF activities" by M. Herman
 - JEFF, "Status of the JEFF project" by R. Jacqmin
 - JENDL
 - ROSFOND/BROND, "BROND evaluations" by A. Ignatyuk
 - CENDL
 - IAEA activities
 - TENDL (by invitation)

APPENDIX C

NEA/SEN/NSC/WPEC(2015)1

Subgroup 27:

6. Review of final or near-final subgroup reports

Subgroup 28: Processing of covariance data (M. Dunn, ENDF)
 Subgroup 35: Scattering angular distribution in the fast energy range (T. Kawano, ENDF)
 Subgroup 36: Reporting and usage of experimental data for evaluation in the resolved

Prompt photon production from fission products (R. Jacqmin, JEFF)

7. Status of on-going or start-up subgroups

• Subgroup C: The High Priority Request List for nuclear data (A. Plompen, JEFF)

resonance region (P. Schillebeeckx, JEFF)

- Subgroup 37: Improved fission product yield evaluation methodologies (R.W. Mills, JEFF)
- Subgroup 38: A modern nuclear database structure beyond the ENDF format (D. McNabb, ENDF)
- Subgroup 39: Methods and approaches to provide feedback from nuclear and covariance data adjustment for improvement of nuclear data files (M. Salvatores, G. Palmiotti, ENDF)
- Subgroup 40: Collaborative International Evaluated Library Organisation (CIELO)
 Pilot Project (M. Chadwick, ENDF)
- Subgroup 41: Improving nuclear data accuracy of Am-241 and Np-237 capture cross-sections (H. Harada, JENDL)

8. Proposals for new subgroups

 Thermal Scattering Kernel S(α,β): Measurement, Evaluation and Application (proposal by G. Noguere and S. Khaler)

9. Conferences and meetings of interest to the nuclear data community

- WONDER2015
- ND2016
- ND Meeting calendar (<u>www.oecd-nea.org/science/wpec/calendar.html</u>)

10. Selection of Working Party chair

11. Any other business

12. Date and place of next meetings

Proposal: May ??-??, 2016, NEA Headquarters

APPENDIX C

NEA/SEN/NSC/WPEC(2015)1

Participation to the twenty-seventh WPEC meeting NEA Headquartes, Issy-les-Moulineaux, France, 21-22 May 2015

Representatives from evaluations projects

Representatives from evaluation projects

Mark CHADWICK Yaron DANON Mike DUNN Mike HERMAN Albert (Skip) KAHLER	ENDF / SG 40 ENDF ENDF / SG 28 ENDF ENDF	(confirmed) (confirmed) (confirmed) (confirmed)
Ulrich FISCHER Robert JACQMIN	JEFF JEFF / SG 27	(excused) (confirmed)
Arjan KONING Arjan PLOMPEN	JEFF JEFF / SG C	(confirmed) (confirmed)
Tokio FUKAHORI Hideo HARADA	JENDL / WPEC Cha JENDL / SG 41	` /
Masayuki IGASHIRA	JENDL / SG 41 JENDL	(confirmed)
Osamu IWAMOTO	JENDL	(confirmed)
Kenji YOKOYAMA	JENDL	(confirmed)
Tengiz GOLASHVILI Victor IGNATIEV Anatoly IGNATYUK Dimitry S. OLEYNIK Valentin SINITSA	BROND/ROSFOND BROND/ROSFOND BROND/ROSFOND BROND/ROSFOND BROND/ROSFOND	(confirmed)
Zhigang GE	CENDL	(confirmed)

Zhigang GE CENDL (confirmed)

Andrej TRKOV IAEA (on behalf of Robin FORREST) and confirmed

Subgroup coordinators

Cyrille DE SAINT JEAN SG 34 / JEFF
Toshihiko KAWANO SG 35 / ENDF
Peter Schillebeeckx SG 36 / JEFF
Robert MILLS SG 37 / JEFF

Robert MILLS SG 37 / JEFF (confirmed)
Dennis MCNABB SG 38 / ENDF (confirmed)
Giuseppe PALMIOTTI SG 39 / ENDF (confirmed)

Invitees

Young-Ouk LEE KAERI

Do Heon KIM KAERI (confirmed)
Xichao RUAN CENDL (confirmed)
Haicheng WU CENDL (confirmed)

Secretariat

Oscar CABELLOS NEA (confirmed)

DISTRIBUTION

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